Conclusions, Ramifications, and Scope

Accordingly, the reader will see that by some relatively simple, but logical, changes to the basic structure of centrifugal pumps, the mode of operation of the pump as well as performance is dramatically changed. It is a change from an open unfocused divergent system to a focused system, which by the concept of containment becomes positive displacement.

This patent application describes a positive displacement tangential kinetic pump with very high power density.

It also describes a pump in which higher head pressures are available without excessive capacity and the ability to meter out flow like other positive displacement pumps.

It describes a pump, which is suitable to be used as a propulsion device.

It describes a pump which can separate a mixture of fluids of different densities, and which can remove solid and more dense particles while pumping the cleaned fluid.

It describes a pump, which can be used to simultaneously provide a motive power and separate out dense particles such as gold.

It describes a pump, which has the features, as aforementioned, and can also be simply changed in mode from a high-pressure low flow device to a device with low-pressure high flow, simply by opening or closing valves.

It describes a motor, which has the basic operation of the pump, except that the rotor takes energy from the fluid rather than delivering it, and such a motor being unusual in having a very high specific speed and as such is useful for hydroelectric power production.

So the scope of the invention is broadly described from a high power kinetic pump, to a high pressure pump, to a propulsion pump, to a centrifuge pump, to a general pump incorporating high flow and low pressure and thus being very efficient in terms of the drive motor, to a hydro motor, to a marine drive, to a gold dredge. This has been accomplished through simple but rational changes and the use of the principle of pressure stratification or isobars, within the pumping chamber in order to accomplish the objectives.

Drawings

Drawings are objected to under 37CFR1.8(a), the fluid passages between the vanes being near to tangential (at intake plenum) but curving toward radial, and being radial near the periphery of the cylinder of rotation and then turning away from the direction of rotation, and continuing in a peripheral direction around a cylindrical path to end by the vane extending axially radially outward to a close tolerance with the (inner) cylindrical wall of the housing chamber – this is shown in Fig 3A. The claim for this is now claim 28.